

Updated Informative Digest

Proposed Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions

Sections Affected:

Proposed amendment to California Code of Regulations, title 13, sections 2400, 2401, 2402, 2403, 2404, 2405, 2405.1, 2405.2, 2405.3, 2406, 2407, 2408, 2408.1, 2750, 2751, 2752, 2753, 2754, 2754.1, 2754.2, 2755, 2756, 2757, 2758, 2759, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2767.1, and 2771.

Proposed adoption of California Code of Regulations, title 13, sections 2408.2 and 2754.3.

Proposed repeal of California Code of Regulations, title 13, section 2768.

Documents Incorporated by Reference (Cal. Code Regs., tit. 1, § 20, subd. (c)(3)):

The Proposed Amendments incorporated by reference the following amended certification and test procedures and standards in the specified sections of the regulations:

- CARB. Small Off-Road Engine Evaporative Emissions Test Procedure, TP-901, Test Procedure for Determining Permeation Emissions from Small Off-Road Engine Fuel Tanks. Adopted July 26, 2004, and last amended [insert amended date]. **Sections 2755(b) and 2758(b)(4)(A)2.**
- CARB. Small Off-Road Engine Evaporative Emissions Test Procedure, TP-902, Test Procedure for Determining Evaporative Emissions from Small Off-Road Engines. Adopted July 26, 2004, and last amended [insert amended date]. **Section 2758(a)(4)(B).**
- CARB. Small Off-Road Engine Evaporative Emission Control System Certification Procedure, CP-902, Certification Procedure for Evaporative Emission Control Systems on Small Off-Road Engines. Adopted July 26, 2004, and last amended [insert amended date]. **Section 2753(a).**
- CARB. California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1054). Adopted October 25, 2012, and last amended [insert amended date]. **Section 2403(d).**
- CARB. California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1065). Adopted October 25, 2012, and last amended [insert amended date]. **Section 2403(d).**

The Proposed Amendments incorporated by reference the following documents in the specified sections of the regulations. These are copyrighted documents and will be on file as part of the public record.

- American National Standards Institute, Inc. (ANSI)/National Electrical Manufacturers Association (NEMA). 2016. ANSI/NEMA WD 6-2016, Wiring Devices - Dimensional Specifications. ANSI Approval Date: February 11, 2016. Copyrighted. **Section 2401(a)(36).**
- American National Standards Institute, Inc. (ANSI)/Outdoor Power Equipment Institute (OPEI). 2018. ANSI/OPEI B71.10-2018, American National Standard for Off-Road Ground-Supported Outdoor Power Equipment – Gasoline Fuel Systems – Performance Specifications and Test Procedures. Published November 12, 2018. Copyrighted. **Section 2752(a)(3).**
- SAE International. 2011. Surface Vehicle Standard SAE J1527, Marine Fuel Hoses. Revised February 2011. Copyrighted. **Section 2752(a)(29).**
- SAE International. 2012. Surface Vehicle Standard SAE J30, Fuel and Oil Hoses. Revised February 2012. Copyrighted. **Section 2752(a)(28).**
- SAE International. 2013. Surface Vehicle Recommended Practice SAE J2996, Small Diameter Fuel Line Permeation Test Procedure. Issued January 2013. Copyrighted. **Section 2752(a)(32).**
- SAE International. 2017. Surface Vehicle Recommended Practice SAE J1930, Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms - Equivalent to ISO/TR 15031-2. Revised March 2017. Copyrighted. **Sections 2404(c)(4)(D) and 2752(a)(31).**
- SAE International. 2019. Surface Vehicle Recommended Practice SAE J1737, Test Procedure to Determine the Hydrocarbon Losses from Fuel Tubes, Hoses, Fittings, and Fuel Line Assemblies by Recirculation. Revised August 2019. Copyrighted. **Sections 2752(a)(30) and 2754(b)(2).**

The Proposed Amendments incorporated by reference the following documents in the specified sections of the "California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1054)":

- Title 40, Code of Federal Regulations, Part 1051—Control of Emissions from Recreational Engines and Vehicles, section 1051.505. Last amended June 29, 2021. **Section 1054.501(d).**
- Title 40, Code of Federal Regulations, Part 1068—General Compliance Provisions for Highway, Stationary, and Nonroad Programs, sections 1068.103(f) and 1068.215. Last amended June 29, 2021. **Sections 1054.10(g) and 1054.601(b) and (c).**

The Proposed Amendments incorporated by reference the following documents in the specified sections of the "California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1065)". All of these documents except the CARB test procedures and certification procedure, federal test

procedures, and National Institute of Standards and Technology (NIST) publications, are copyrighted documents. All of these documents will be on file as part of the public record.

- Title 40, Code of Federal Regulations, Part 63, Appendix A—Test Methods, Test Method 320—Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy. Last amended December 2, 2020. **Sections 1065.266 and 1065.275.**
- Title 40, Code of Federal Regulations, Part 86—Control of Emissions from New and In-Use Highway Vehicles and Engines, section 86.132-96(j). Last amended June 29, 2021. **Section 1065.405(e)(2) [re-lettered to 1065.405(f)(2) by the Proposed Amendments].**
- Title 40, Code of Federal Regulations, Part 1090—Regulation of Fuels, Fuel Additives, and Regulated Blendstocks. Last amended December 4, 2020. **Section 1065.701(d)(2).**
- ASTM International. 1995. D2986 – 95a, Standard Practice for Evaluation of Air Assay Media by the Monodisperse DOP (Diethyl Phthalate) Smoke Test. Approved September 10, 1995. Copyrighted. **Section 1065.170(c).**
- ASTM International. 2009. F1471 – 09, Standard Test Method for Air Cleaning Performance of a High-Efficiency Particulate Air Filter System. Approved March 1, 2009. Copyrighted. **Section 1065.1001.**
- ASTM International. 2010. D5291 – 10, Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants. Approved May 1, 2010. Copyrighted. **Section 1065.655(e).**
- ASTM International. 2010. D5599 – 00 (Reapproved 2010), Standard Test Method for Determination of Oxygenates in Gasoline by Gas Chromatography and Oxygen Selective Flame Ionization Detection. Approved October 1, 2010. Copyrighted. **Sections 1065.655(e).**
- ASTM International. 2012. D4629 – 12, Standard Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection. Approved April 15, 2012. Copyrighted. **Section 1065.655(e).**
- ASTM International. 2012. D5762 – 12, Standard Test Method for Nitrogen in Petroleum and Petroleum Products by Boat-Inlet Chemiluminescence. Approved April 15, 2012. Copyrighted. **Section 1065.655(e).**
- ASTM International. 2012. D6348 – 12^{e1}, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy. Approved February 1, 2012. Copyrighted. **Sections 1065.266(b) and 1065.275(b).**
- ASTM International. 2020. D1835 – 20, Standard Specification for Liquefied Petroleum (LP) Gases. Approved May 1, 2020. Copyrighted. **Section 1065.701.**

- CARB. 2012. California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles. Amended December 6, 2012. **Section 1065.701.**
- CARB. 2018. California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles. Amended December 19, 2018. **Section 1065.701.**
- GPA Midstream Association. 2017. GPA Midstream Standard 2140-17, Liquefied Petroleum Gas Specifications and Test Methods. Adopted as Recommended Procedures 1931, revised 2017. Copyrighted. **Section 1065.701.**
- International Organization for Standardization (ISO). 2020. ISO 8178-1, Reciprocating internal combustion engines — Exhaust emission measurement — Part 1: Test-bed measurement systems of gaseous and particulate emissions. Reference number ISO 8178-1:2020(E). Published June 2020. Copyrighted. **Section 1065.601(c)(1).**
- NIST. 1994. NIST Technical Note 1297, 1994 Edition, Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results. September 1994. **Section 1065.1001.**
- NIST. 2008. NIST Special Publication 811, 2008 Edition, Guide for the Use of the International System of Units (SI). March 2008. **Sections 1065.20(a) and 1065.1005.**
- SAE International. 2011. Surface Vehicle Recommended Practice SAE J1151, Methane Measurement Using Gas Chromatography. Stabilized September 2011. Copyrighted. **Sections 1065.267(b) and 1065.750(a)(2)(i).**

Description of Regulatory Action

Small off-road engines (SORE) are spark-ignition engines rated at or below 19 kilowatts (kW). Emissions from SORE occur both when the engine is running (exhaust and evaporative emissions) and when it is not running (evaporative emissions). CARB regulates SORE emissions by adopting and enforcing emission standards, and certification and test procedures, for new engines manufactured for sale, sold, or offered for sale in California, or introduced, delivered or imported into California for introduction into commerce (collectively, SORE regulations).

Since the first exhaust emission standards for SORE were adopted by CARB in 1990, CARB has periodically updated the SORE regulations to continue to refine requirements and tighten emission standards to protect air quality. The current rulemaking and Proposed Amendments are necessary to achieve SORE emission reductions expected under the Revised Proposed 2016 State Strategy for the State Implementation Plan (2016 State SIP Strategy), to meet the goals of California Executive Order N-79-20 to transition off-road vehicles and equipment operations to 100 percent zero-emission by 2035 where feasible and to meet the requirement of California Assembly Bill (AB)1346 (Chapter 753, Stats. of 2021) to

adopt cost-effective and technologically feasible regulations by July 1, 2022, to prohibit engine exhaust and evaporative emissions from new small off-road engines.

On October 12, 2021, CARB released the Notice of Public Hearing (45-Day Notice) and Staff Report: Initial Statement of Reasons for Rulemaking (Staff Report or ISOR), titled "Public Hearing to Consider Proposed Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions," for public review. The ISOR contains a description of the rationale for the Proposed Amendments. The SORE regulations and test and certification procedures are attached as separate appendices in the Staff Report with full proposed regulatory language illustrated in underline and strikeout formatting. On October 12, 2021, all references relied upon and identified in the ISOR were made available to the public. On November 12, 2021, additional supporting documents were made available to the public through a "Notice of Public Availability of Additional Documents and Information" (November 2021 15-Day Notice).

The formal 45-day comment period for the Proposed Amendments opened October 15, 2021, and closed November 29, 2021. Written comments were received from more than 1,300 individuals or organizations during the 45-day comment period. The November 2021 15-day comment period opened on November 12, 2021, and closed November 29, 2021. Some of the individuals and organizations who submitted comments during the 45-day comment period included comments on those additional supporting documents released on November 12, 2021, in their comments on the material released on October 12, 2021, the "ISOR Proposed Amendments."

On December 9, 2021, CARB conducted a public hearing. CARB staff informed the Board of the Proposed Amendments to the small off-road engine regulations. During the Board hearing on December 9, 2021, 66 stakeholders provided oral testimony, and 46 additional written comments were submitted by individuals or organizations.

At the conclusion of the hearing, the Board approved Resolution 21-28 for adoption of the Proposed Amendments. In accordance with Government Code section 11346.8, the Board directed the Executive Officer to adopt the Proposed Amendments after making any appropriate conforming modifications, as well as any additional supporting documents and information, available to the public for a period of at least 15 days. The Board further provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make such modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if warranted.

Subsequent to the hearing, CARB staff proposed modifications to the ISOR Proposed Amendments to address the direction given by the Board as well as some of the comments received on certain issues. On March 30, 2022, CARB released a "Notice of Public Availability of Modified Text and Availability of Additional Documents" (March 2022 15-Day Notice), which was available for public comment from March 30, 2022, through April 14, 2022. CARB received written comments from 22 individuals or organizations during the March 2022 15-Day Notice comment period. On May 27, 2022, CARB released a "Notice of Public Availability of Additional Documents and Information" (May 2022 15-Day Notice), which was available for public comment from May 27, 2022, through June 13, 2022. CARB received

written comments from nine individuals or organizations during the May 2022 15-Day Notice comment period.

The 45-Day and 15-Day Notices were published to the California Regulatory Notice Register. To ensure extensive outreach, CARB posted the Notices and proposed regulatory and staff report modifications to [CARB's website](https://www2.arb.ca.gov) for this rulemaking at <https://ww2.arb.ca.gov/rulemaking/2021/sore2021>, accessible to all stakeholders and interested parties, and sent the Notices to over 5,000 subscribers to the "SORE Working Group" and "Mobile Source Program Mailouts" public email list serves. The "Mobile Source Program Mailouts" list includes all persons who submitted oral or written comments at the hearing or during comment periods, or requested notification of any proposed changes, per section 44(a), title 1, California Code of Regulations, and Government Code section 11340.85.

Summary of 15-Day Notice Modifications

CARB staff proposed modifications to the ISOR Proposed Amendments in the March 2022 15-Day Notice to better ensure a successful transition to zero emissions. The proposed modifications were developed in response to certain public comments received since the ISOR was released to the public on October 12, 2021. The modifications to the regulatory language in the March 2022 15-Day Notice include the following proposed changes:

- Allow more time for pressure washers using engines with displacement of 225 cubic centimeters (cc) or larger to comply with emission standards of zero. This is achieved by setting interim emission standards for model years 2024 through 2027 that are the same as those proposed for generators and setting emission standards of zero for model year 2028 and later for these pressure washers.
- Allow manufacturers to earn evaporative emission credits for all engines with displacement less than or equal to 80 cc before emission standards of zero are implemented for most engines beginning in model year 2024.
- Allow manufacturers to certify all engines with displacement less than or equal to 80 cc to the existing diurnal emission standards through model year 2023.
- Other nonsubstantive changes to improve clarity and consistency.

The specific modifications to the regulatory language can be found in Attachments A through F of the March 2022 15-Day Notice. The originally proposed regulatory language is shown in ~~strikethrough~~ to indicate deletions and underline to indicate additions. Deletions and additions associated with the modifications in the March 2022 15-Day Notice are shown in ~~double-strikethrough~~ and double underline format, respectively.

In addition, CARB staff added updated zero-emission professional lawn mower price information to the rulemaking record in response to comments received since the ISOR was released, as well as additional references. Staff updated the emission benefits, health benefits, and economic analyses described in the ISOR to reflect the March 2022 15-Day Notice's regulatory modifications to emission standards for pressure washers that use engines with displacement 225 cc or larger and updated lawn mower price information.

The March 2022 15-Day Notice contains a description of these updates, and Attachment G of the March 2022 15-Day Notice shows the annualized results of the updated analyses.

Comparable Federal Regulations:

When California's SORE exhaust emission standards were first adopted in 1990, and when California's SORE evaporative emission standards were adopted in 2003, no comparable federal rules existed. In 1995, U.S. EPA adopted Title 40, Code of Federal Regulations (40 CFR) Part 90, to control exhaust emissions from new nonroad spark-ignition engines at or below 19 kW, and in 2008, U.S. EPA adopted CFR Parts 1054 and 1060 to control exhaust emissions from new, small nonroad spark-ignition engines and equipment and evaporative emissions from new and in-use nonroad and stationary equipment, respectively. Subsequent California rulemakings in 2011 and 2016 helped to align California's exhaust and evaporative test and certification procedures with federal requirements, but differences remain between the two sets of regulations.

Although staff has made an effort to align California requirements with federal requirements as much as possible, significant additional stringency in California regulations of SORE is justified in light of California's unique air quality concerns. Low rates of compliance with evaporative emission standards in CARB's validation studies, compliance testing, and other testing suggest the expected emission reduction benefits of CARB's regulations have not been completely realized. Replacing new SORE equipment with ZEE would ensure emission reductions are achieved, as expected under the 2016 State SIP Strategy. California's exhaust and evaporative emission regulations for this category, as specified in title 13, California Code of Regulations, sections 2400-2409 and 2750-2774, are already equivalent to or more stringent than the existing federal standards.

An Evaluation of Inconsistency or Incompatibility with Existing State Regulations (Gov. Code, § 11346.5, subd. (a)(3)(D)):

During the process of developing the proposed regulatory action, CARB conducted a search of any similar regulations on this topic and concluded these regulations are neither inconsistent nor incompatible with existing state regulations.